

TERMITES FROM BRITISH INDIA (NEAR BOMBAY,
IN GUJERAT AND BANGALORE) COLLECTED
BY DR. J. ASSMUTH, S.J.

BY

NILS HOLMGREN (STOCKHOLM).

PART II.

(With Plates E, F, G.)

(Continued from page 793, Vol. XXI.)

I have again received two consignments of termites (43 tubes in all) from Dr. Assmuth to work them out for publication in the Journal of the Bombay Natural History Society, the one coming from Bombay, Hubli, Bangalore, and Krishnarajapuram, the other from Borivli (near Bombay), and the province of Gujerat (Anand, Godhra, Vadtal, Tuwa).

Hubli is situated in 15° - $20'$ N. and 75° - $9'$ E., 2,500 feet above the level of the sea, and about 470 km. south of Bombay.

Bangalore is situated in 12° - $58'$ N. and 77° - $35'$ E., 3,500 feet above the level of the sea, and 850 km. south of Bombay.

Krishnarajapuram is the first station after Bangalore on the line Bangalore-Madras, about 13 km. east of Bangalore.

The province of Gujerat is for the greater part lowland; thus Anand is but 135 feet above the level of the sea and the elevation of the other places in Gujerat mentioned above is more or less the same. The greater portion of the province is cultivated land ("the garden of India"), jungle occurs but sporadically (*e. g.*, between Godhra and Tuwa). Anand, one of the most important places in the Kaira District, is situated in 22° - $33'$ N. and 72° - $58'$ E., 435 km. almost directly north of Bombay, Vadtal (Wartal) is nearly 15 km. north-west of Anand, Tuwa about 70 km. and Godhra 80 km. east of the same place.

The special value of both collections consists in this that they are the first more extensive ones from the said parts of India. Our knowledge of Indian termites was up to now based on collections made in Bombay and its environments, in the Wallon district, in Sind, and near Madras. From Bangalore I had so far seen only one species (*Odontotermes bangalorensis*), and from Gujerat none at all were known.

The Gujerat collection was rather poor; this was due to the remarkable drought of 1910 and 1911 which had forced the termites to repair to greater depths in the soil. In spite of this, Assmuth was able to procure no less than 16 tubes from there.

The Bangalore collection is much richer; it is specially valuable on account of the detailed collecting notes referring to the single nests. The same is true of the Gujerat collection.

The two collections contain the following species:—

PROTERMITIDÆ: *Calotermes (Neotermes) Assmuthi*, n. sp., from Bangalore.

MESOTERMITIDÆ: *Leucotermes indicola*, Wasm., from Borivli.
Coptotermes parvulus, n. sp., from Anand and Vadtal.

METATERMITIDÆ: *Odontotermes obesus*, Ramb., from Borivli, Godhra, Vadtal, Anand, and Tuwa.

„ *bangalorensis*, Holmgr., from Hubli, Bangalore, and Krishnarajapuram.

„ *wallonensis*, Wasm., from Bangalore, Krishnarajapuram, and Tuwa.

„ *Fecæ*, Wasm., from Bombay and Borivli.

„ *Assmuthi*, n. sp., from Borivli.

Microtermes anandi, n. sp., from Anand.

Eremotermes paradoxalis, n. sp., from Bangalore.

Microcerotermes tenuignathus, n. sp., from Tuwa.

In addition to the species just mentioned, I propose to discuss two forms of *Microtermes* belonging to the East Indian fauna, viz., *M. incertoides*, n. sp., and *M. anandi* f. *curvignathus*. The former of these was reported by Wasmann as *M. incertus* from Wallon, while the latter which had been sent to me by Assmuth on a former occasion (cf. Journ. Bombay Nat. Hist. Soc., Vol. XXI, No. 3), had been considered by me as belonging possibly to the same species (*M. incertus*).¹

Fam. PROTERMITIDÆ, Holmgr.

Calotermes (Neotermes) Assmuthi, n. sp.

IMAGO.—Very close to *C. Greeni* from Ceylon, but somewhat bigger, with broader pronotum, a little larger faceted eyes and ocelli, 3rd joint of antennæ a trifle longer than 2nd, 4th shorter than 2nd.

Length with wings ...	...	14 mm.
„ without „ ...	...	7.2 „

¹ Assmuth wishes to thank all who have helped him in his work, especially the Fathers of the Catholic Mission in Gujerat and the Sisters of the Good Shepherd in Bangalore who generously gave permission to examine all nests on their grounds.

Length of fore wings ...	...	11 mm.
Breadth of head ...	...	1.48 "
" of pronotum ...	...	1.56 "
Length of " ...	...	.76 "

SOLDIER.—Smaller than that of *C. Greeni*.

Head relatively longer and thinner than that of *C. Greeni*, just beyond the middle slightly constricted so that the posterior part of the head is somewhat narrower than the anterior. Mandible larger than that of *Greeni*. Inner teeth of left mandible stronger than with *Greeni*. Antennæ same as in *Greeni*.

Pronotum broader than head, much shorter than half its width, posterior margin distinctly excavated in the middle.

Length of body ...	...	9.55-9.8 mm.
Head with mandibles ...	...	4.6-4.83 "
" without " ...	...	2.89-3.12 "
Width of head ...	...	1.98-2.05 "
" of pronotum ...	...	2.2-2.09 "
Length of " ...	...	1.03-.95 "

WORKER.—

Length of body ...	...	6.5 mm.
Width of head ...	...	1.67 "
" of pronotum ...	...	1.56 "

Geographical Distribution.—East India : Bangalore.

Collector's Report :—

BANGALORE, 8-11-1911.—“Termites in dry trunk of tree in garden of Convent of the Good Shepherd. Few soldiers in proportion to workers. Tunnels built irregularly in wood and these, strange to say, altogether without inner lining of earthy material as is usually the case with termites.” (Assmuth.)—The said lining of tunnels is very often wanting with *Calotermes*, a species frequently found even on live trees.

Fam. MESOTERMITIDÆ, Holmgr.

Subfam. LEUCOTERMITINÆ, Holmgr.

Gen. LEUCOTERMES, Silv.

Leucotermes indicola, Wasm.

A couple of workers which are of a strikingly dark colour, are present.

Locality.—Borivli, near Bombay.

Collector's Report :—

BORIVLI JUNGLE (SALSETTE ISLAND), 13-12-1911.—“In pillars of mound of *Odontotermes obesus*, in middle of nest, quite close to royal cell.” (Assmuth.)

Subfam. COPTOTERMITINÆ, Holmgr.

Gen. COPTOTERMES, Silv.

Coptotermes parvulus, n. sp.

IMAGO.—Not known.

SOLDIER.—Closest to *C. travians*, Hav. ; on an average however smaller, with relatively shorter and broader head. Submentum in the middle considerably constricted.

Length of body ...	...	3.5-4 mm.
Head with mandibles ...	...	1.75-1.98 "
" without ...	...	1.18-1.25 "
Width of head ...	...	1.06-1.1 "
" of pronotum ...	...	.68-.72 "

WORKER.—Similar to that of *C. travians*, but with broader head and narrower pronotum.

Length of body ...	...	3.3 mm.
Width of head ...	...	1.06 "
" of pronotum ...	...	.57 "

Geographical Distribution.—Gujerat : Anand and Vadtal.

Collector's Report :—

ANAND, 21-12-1911.—“ Termites on trunk of tree, in tunnels like those of No. 127 (*Odontotermes Assmuthi*, n. sp.). Nest itself at foot of tree among roots, inaccessible.” (Assmuth.)

VADTAL, 31-12-1911.—“ In tunnels in dry fire-wood. The tunnels of these termites were for the most part simply cut in the wood just below the bark ; no inner lining (of earthy material) to be seen.” (Assmuth.)—Some *Coptotermes* dwell in live trees ; these species do not line their galleries.

Note.—This species is well separated from the Bombay form, *C. Heimi* Wasm., but is rather close to the Indo-Chinese *C. travians*, Hav.

Fam. METATERMITIDÆ, Holmgr.

TERMES SECTION.

Gen. ODONTOTERMES, Holmgr.

Odontotermes obesus, Ramb.

Specimens from Bombay, Anand, Godhra, Vadtal, and Tuwa are present.

The soldiers vary rather considerably in size, as previously stated.

Collector's Report :—

BORIVLI JUNGLE, 13-12-1911.—“ Typical hillock-nest. Royal cell in middle of mound, slightly higher than surrounding ground. 1 king and 1 queen taken. Nest abounding in guests : though hardly

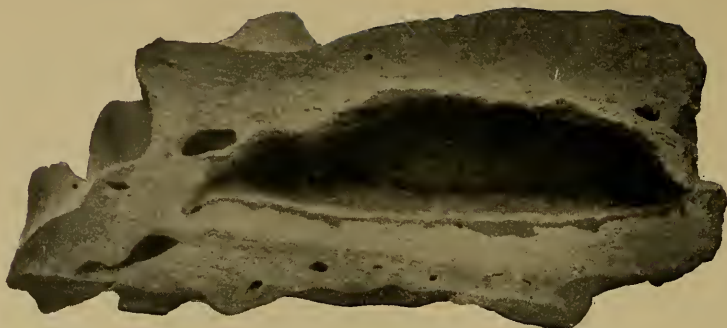


Fig. 1.—Royal cell of *Odontotermes bengalensis* Holmgr.



Fig. 2.—Fungus beds of *Odontotermes bengalensis* Holmgr.



Fig. 3.—Mound of *Odontotermes bengalensis* Holmgr., more than 8 feet high.

one-third of fungus beds examined, yet more than 550 guests taken." (Assmuth).

GODHRA, 28-12-1911.—"Termites on trunk of tree in covered galleries. No trace of nest rising above ground to be seen, but underground between roots of tree several holes with small bits of fungus-beds found." (Assmuth.)—This is the first time when Assmuth saw fungus-growing termites in galleries on tree. It seems, however, not to be quite so rare an occurrence, for I previously received such termites from Ceylon, Malacca, and Java. Fungus-growing termites are met with as noxious insects on india-rubber trees in Java as well as Malacca (DANNEMANN, VON BUTTEL-REEPEN). Moreover, *Odontotermes Assmuthi* described below, is undoubtedly a fungus-grower, yet the specimens were collected in galleries on a tree.

GODHRA, 28-12-1911.—"In dry cow-dung hollowed out by termites." (Assmuth.)

GODHRA, 28-12-1911.—Tall mound abandoned by termites. Fungus-beds found only in portion of nest below level of surrounding ground. "There big hole divided into chambers by thin partitions like folding screens; I looked in vain for some definite plan in arrangement of chambers in which fungus-beds were stored." (Assmuth.)—Build of nest same as in *O. bangalorensis*.

VADTAL, 31-12-1911.—In logs of fire-wood; tunnels coated with earthy material.

ANAND, 4-1-1912.—"Nest under well developed shrub in Cactus hedge, by side of foot-path. No overground structure, which seems to be wanting everywhere in cultivated districts of Gujerat. That such is really the case I have repeatedly been told by persons well acquainted with the country. (See also *Haviland*. Observations on Termites, Linn. Journ. Zool. Vol. XXVII, p. 368, ". . . the appearance and shape of the nests are much modified by conditions; thus the mound-builders can live without a mound in cultivated ground, where mounds are not permitted.") Fungus beds underground from about 2 feet downwards. Guests the same as with *Odontotermes obesus* generally. Shrub as well as Cactus above the nest covered with galleries and extensive coatings of earthy material, under which surface of bark had been gnawed by termites." (Assmuth.)

TUWA, 4-1-1912.—"In galleries of earthy material, on pipul tree." (Assmuth.)

TUWA, 4-1-1912.—"In half dried cow-dung, hollowed out by termites." (Assmuth.)

Odontotermes bangalorensis, Holmgr. (nec *bengalensis*, Holmgr.).

IMAGO.—Very similar to *O. Redemanni* from Ceylon, but much lighter in colour: yellowish brown to pale yellow. T-shaped mark of the pronotum broader; light-coloured parts otherwise about the

same. Wings slightly yellow or completely hyaline, with faint yellowish "subcostal line". Basal portion of clypeus hairless in the middle. For the rest, hair somewhat shorter.

Structure of body as in *Redemanni*. Last third of mediana (towards tip of wing) divided.

Length with wings	29-30	mm.
" without "	13	"
" of fore-wings	24	"
" " head	2.93	"
Breadth " "	2.93	"
" " pronotum	2.47	"
Length " "	1.25	"

QUEEN.—Sides of abdomen pigmented.

SOLDIER.—Very similar to those of *O. obesus* and *Redemanni*, differing only in size.

Length of body	3.8-4	mm.
Head with mandibles	1.75-1.79	"
" without "	1.03-1.1	"
Width of head	.95—.99	"
" of pronotum	.76	"

BIG WORKER.—As in *O. obesus* and *Redemanni*.

Length of body	3.8	mm.
Width of head	1.33	"
" of pronotum	.76	"

SMALL WORKER.—

Length of body	3.4	mm.
Width of head	.84	"
" " pronotum	.57	"

Geographical Distribution.—Bangalore, Krishnarajapuram, Hubli.

Collector's Report:—

BANGALORE, 4-11-1911.—"Nest lying by itself in garden of Good Shepherd Convent. Solid superstructure, rather smooth, not showing the slightest external aperture. Mound broad at base, tapering towards top, and ending in a few separate massive pointed peaks; total height 4'-2". No fungus-beds whatever had been constructed in overground portion of nest; they began only level with the surrounding ground and continued downwards for a considerable depth. King and queen (the latter rather thick but only 6 cm. long) in cell almost at bottom of superstructure, *i.e.*, nearly level with surrounding ground, in centre of nest. In block of red soil containing royal cell no chambers, neither for eggs nor larvae, only some widened galleries (see photo 1). Strikingly great number of soldiers in royal cell. The bite of the soldiers is not excessive, but their secretion stains very strongly.



Fig. 4.—Low, but rather broad, mound of *Odontotermes bengalensis* Holmgr.

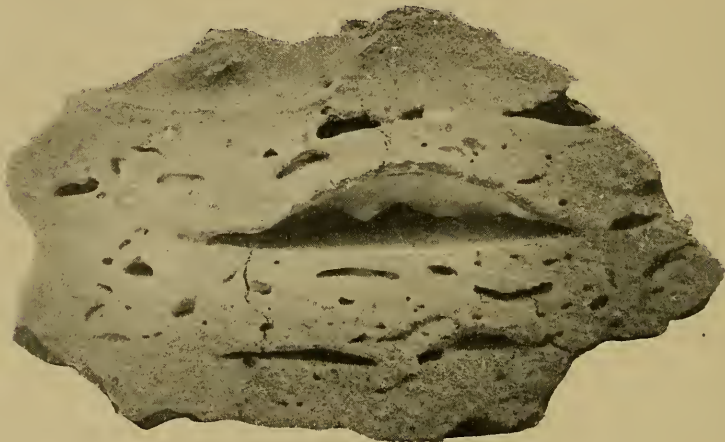


Fig. 5.—Royal cell of *Odontotermes bengalensis* Holmgr.

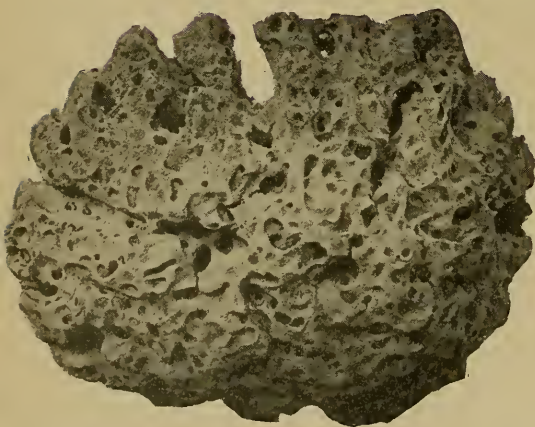


Fig. 6.—Fungus beds of *Odontotermes bengalensis* Holmgr. with remarkable indentations.

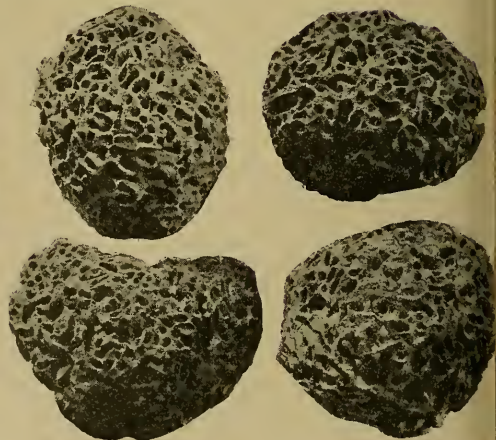


Fig. 7.—Fungus beds of *Odontotermes wallonensis* Wasm.

Fungus-beds (photo 2) separated from each other by thin layer of earthy material forming a sort of loose cover surrounding the different lumps, after the manner of a folding screen. Fungus-beds of this species, therefore, not in excavated hollows of ground as with *O. obesus* and other kinds. The space below overground structure of nest in question was but a single big hole which had its roof supported by some few fairly strong pillars of red soil and was divided by thin partition walls, into a great many irregularly arranged smaller compartments. Overground mound to all appearance merely the accumulation of earthy material (rendered extremely hard by secretions) brought up by termites from below when widening the underground portion of nest.

The tallest mounds I have so far seen belong to this kind. At Krishnarajapuram I measured one about 7, and another more than 8 feet high (photo 3).” (Assmuth.)

BANGALORE, 11-10 and 2-11-1911.—“Nest in enclosure in front of Convent of the Good Shepherd. Mound leaning against wall, several feet distant from a big tree. At first only some fungus-beds examined from upper portion of nest, later on whole nest dug out. Rather extensive but not very high overground structure crowned by blunt peaks (photo 4). Outside appearance of mound more like that observed at Kirkee (*O. brunneus*); peaks, however, not perforated like those of the just mentioned species, nor smooth and turret-like as at Khandala (*O. obesus*), but with rough and warty surface.¹ As many as *six* queens yet only one king taken. All the queens somewhat smaller in size and less bulky than common fullgrown specimens of this kind, their length being hardly 6 cm.; king, on the other hand, more powerfully developed than usual. Groundfloor of royal cell exceptionally large, 20.5 × 25 cm., with very many small holes for passage of termites. In the clod of earth containing royal cell, a number of egg—as well as nursery-chambers.” (Assmuth.)

Assmuth’s observation that egg and nursery-chambers (“Ei-und Brutkammern”) are arranged round the royal cell, is of great interest; it perfectly agrees with my view, *viz.*, that the typical nursery zone which is of common occurrence, *v.g.*, in the *Syntermes* series, is likewise found with the different species of *Termes* and *Odontotermes*. The zone is, however, in the majority of cases rudimentary in the *Termes*-series since its importance has been lessened by the fungus-beds which largely serve as nursery quarters (against *Escherich*, *Termitenleben auf Ceylon*).

BANGALORE, 28-10-1911.—“Mound built against garden wall

¹ It would be interesting to know whether the roughness of the surface was not perhaps due to repairs consequent upon partial destruction of the mound; for in such cases rough and warty surfaces of nests are observed also with other species. This would, at the same time, well account for the different form of the nest.

of St. Martha's Hospital; construction same as preceding one, but nest bigger and overground structure higher. 1 king and 1 queen (the latter 7.5 cm. long) taken, 1-2 feet below level of surrounding ground. Egg—as well as nursery-chambers in clod of earth containing royal cell (photo 5).” (Assmuth.)

BANGALORE, 30-10-1911.—“Nest lying by itself in grass-grown part of garden of St. Martha's Hospital. Neither mound, nor cupola, turret or the like visible. The only sign that made me suspect presence of termites, was a portion of ground which in the midst of a luxuriant growth of grass was absolutely bare. Further examination of this area showed several well marked, clay-brown spots, of the size of a saucer to a plate, the surface of which was conspicuously smooth, very slightly convex, and perforated all over. All these sieve-like patches proved to be the outer coverings of underground tubes which led downwards either perpendicularly or more or less obliquely, growing gradually broader towards their base like sugar-loaves; their depth varied from 1-4.' Fungus-beds had been constructed at the base of all the tubes, the biggest of them in central tube having the comparatively enormous height of 2'. Nearly all the fungus-beds showed laterally curious, deep indentations (photo 6). Royal cell about 3' underground.” (Assmuth.)—The strange outer structure of this nest was probably due to its being situated on cultivated ground which would naturally bring about the repeated destruction of any mound raised above ground.

BANGALORE, 20-10-1911.—“Nest with open chimneys if I am not mistaken (workmen had already destroyed upper part of nest when I arrived). Small nest; fungus-beds 2-3' below ground.” (Assmuth.)

BANGALORE, 23-10-1911.—“Termites coming probably from underground nest; they had during night covered with friable crust of red soil and eaten up dry leaves and bits of wood. Galleries built round about foot of big tree on road outside garden of St. Martha's Hospital.” (Assmuth.)

BANGALORE, 27-10-1911.—“Nest under small parapet of bridge built of masonry work, by side of dry drain in garden of St. Martha's Hospital. Build of mound same as in nests examined 11-10 and 2-11-1911. Small nest. 1 king and 1 queen taken in royal cell about 2' underground.” (Assmuth.)

HUBLI, 7-10-1911.—“Low mound with open chimneys if I remember right. Stopped only a couple of hours at this station; therefore no time to dig up whole nest, could take but a small number of termites from upper portion of it.” (Assmuth.)

KRISHNARAJAPURAM, 7-11-1911.—“Termites in mound, the common superstructure of which was scarcely more than 1-2' high; on it were raised many, in all about 30, blunt cones projecting

more or less 1 foot above surface. Outside of cones not smooth but warty. Took only a few fungus-beds out of nest." (Assmuth.)

KRISHNARAJAPURAM, 7-11-1911.—"Construction of nest same as that examined, 4-11-1911, but mound very low, hardly more than 1 foot high. Whole nest taken out; in it 1 young queen (3.5 cm. long, with slender abdomen) but 2 kings which is, I believe, quite remarkable; it is certainly the first and only experience of this sort I ever had. Not more than two separate fungus-beds in nest, neither of them big but both containing numerous eggs." (Assmuth.)

Odontotermes wallonensis, Wasm.

Habitat.—Tuwa (Gujerat), Bangalore, Krishnarajapuram.

Collector's Report :—

TUWA, 4-1-1912.—"Mound fully 4' high, leaning against small babul tree or rather built round its trunk. Nest similar to those of *O. brunneus* yet cupolas not so regular nor perforated, but solid. King and queen (the latter about 8.25 cm. long, the longest I have so far seen) found, curious to say, 2' above ground. Perhaps originally in this place a heap of mud or earth on which the pair alighted after the flight from the parent colony, thus giving rise to the unusual position of the royal cell. Overground portion of mound almost completely desiccated, only royal cell and its near surroundings still moist. In consequence of this, fungus-beds (photo 7) of mantle region nearly all deserted; the larvas had been taken down to lower portions of nest where they were found in great numbers. The reason for this strange occurrence is, I believe, to be found in the fact that the rainy season of last year (1911) was very poor in Gujerat. I experienced a similar state of things in nearly all the nests I saw in this province; their mantle was much decayed, and the upper portion of the mound was more or less abandoned by the termites which had withdrawn to the deeper and damper parts of the nest." (Assmuth.)—The drought seems to explain sufficiently the abnormal structure of this nest as compared with others of the same species.

BANGALORE, 30-10-1911.—"Nest with open chimneys, lying by itself in garden of St. Martha's Hospital, surrounded on all sides by high grass, but upper portion of nest quite bare (photo 8). Measured depth of one of the chimneys which reached as far as 4' below ground; lumen of mouth of chimney 10-12 cm. in diameter; chimney extending nearly vertically downwards. 1 king and 1 queen (the latter 7.5 cm. long, several workers as well as soldiers fastened to her abdomen by their mandibles) taken in cell more than 2' below ground. These are the fiercest termites I have so far come across in India: their bite drew blood." (Assmuth.)

BANGALORE, 20-10-1911.—“Nest with typical open chimneys (photo 9) in garden of Convent of the Good Shepherd. 2 kings and 2 queens in royal cell about 2' below surface. Here, as in all nests with open chimneys observed in Bangalore city, a common overground mound was scarcely apparent. The cause of this is in all probability the repeated destruction of the superstructure of nests which are undesirable in gardens; in the open country, however, the nests have well defined (2-3' high) overground mounds with projecting chimneys (photo 10).” (Assmuth.)

BANGALORE, 25-10-1911.—Nest as above. “Round about royal cell, in hard block of soil, numerous small chambers with eggs and larvas.” (Assmuth.)

KRISHNARAJAPURAM, 6-11-1911.—“Termites in tunnels and galleries constructed on surface of ground over dry wood and leaves.” (Assmuth.)

Note.—This species has been identified by comparison with a type specimen from Wasmann's collection. Though the latter is not yet quite fully coloured and consequently appears somewhat lighter as well as smaller than Assmuth's specimens, still in all other respects they are both so strikingly alike that I take the identification to be correct. Nevertheless, to settle this point beyond all doubt it would be necessary to make a close study of the respective imagos.

WASMANN considers *wallonensis* to be a subspecies of *O. obesus*. I cannot agree with him in this but am more inclined to group *O. wallonensis* together with *O. brunneus*; the former might in my opinion be taken as a subspecies of the latter rather than of *obesus*. This view is confirmed by the structure of the nest of both types (*wallonensis* and *brunneus*).

Odontotermes Feæ, Wasm.

Habitat.—The species was taken in Bombay and surroundings: St. Xavier's College grounds, Borivli, Khandala.

Collector's Report:—

BOMBAY, 20-11-1911.—“Termites taken in garden of our College. The imagos were just swarming from their nest, at 6-30 p.m., about sunset. On a space of 4-5 m. in diameter I observed from 15-20 holes in the surface of the ground, to all appearances newly opened, the biggest of them about as large as a shilling piece. I had so far not had the slightest idea that at this particular spot a termite nest was to be found; there had been nothing to indicate its presence: the ground was perfectly smooth, and no trace of a mound or any other superstructure was to be noticed. Now I saw the whole area teeming with termites and, strange to say, apart from the winged individuals, they were exclusively



Fig. 8.—Low nest of *Odontotermes wallonensis* Wasm., with "chimneys."



Fig. 9.—Low nest of *Odontotermes wallonensis* Wasm., with "chimneys."



Fig. 10.—High mound of *Odontotermes wallonensis* Wasm., with "chimneys."

workers moving actively about in all directions. Imago after imago emerged in close succession from the holes; after running about for a very short time, they took wing and disappeared in a westerly direction following, I believe, the drift of the breeze. Towards 7-15 o'clock the number of imagos coming out of the openings grew gradually smaller, at last it stopped altogether and the workers began to return into the holes; at 7-25 they started closing the apertures. Shortly before this the soldiers, not a single one of which—as stated above—had till then been noticed in spite of the most careful search, had made their appearance. A good many of them were to be seen in every hole, lining the circular opening, and protruding their heads just above its margin without, however, coming out completely. The workers wedged their way through them and by and by covered up the mouths of the different tunnels with thin convex lids of earthy material. Towards 7-30 all was over: the termites had disappeared and all the holes were closed. It had become quite dark by this time; the last part of the observations had to be made by lamplight." (Assmuth.)

Note.—There are males as well as females among the winged individuals taken from this nest, a clear proof that the swarming of the two sexes takes place simultaneously. It goes without saying that inbreeding is thereby greatly favoured.

The fact that this species of termites closes the nest-openings with a convex cover, is interesting because the South American *Eutermes* do the same when walling up the exits of their dwellings. The nests of the latter often present a warty surface after the swarming of the imagos, a peculiarity brought about by the mode of closing the openings; later on, when dry, the surface appears quite flat. Had the coverings been made level at the very outset, they would burst during the process of drying.

KHANDALA, 22-10-1911.—"Imagines of *O. Feca* swarming at sunset; taken by Fr. Dreckmann." (Assmuth.)

BOMBAY, 30-9-1911.—"Taken in compound of our College near wall of house. A big dry leaf of a fan-palm lying there had been partly plastered over with tunnels of friable earthy material and eaten up, as far as covered, by termites. I observed (as I have done repeatedly before) that the soldiers of this species are not nearly so numerous as the workers, the proportion in the present case being about 1:8 or 10. The soldiers are not so nimble either as the workers, they bite however most readily. The workers bite likewise (though not so frequently as the soldiers); such is hardly or not at all the case with other Indian termites, as far as my experience goes." (Assmuth.)

BORIVLI JUNGLE, 13-12-1911.—"Termites in half dry cow-dung completely hollowed out by them." (Assmuth.)